

# SEQUENCE LISTING

<110> Kenten, John  
 Roberts, Steven

<120> CONTROLLING PROTEIN LEVELS IN EUCARYOTIC ORGANISMS

<130> 2757-5

<140> Unassigned

<141> 2001-06-14

<150> 09/406,781

<151> 1999-09-28

<150> 60/119,851

<151> 1999-02-12

<160> 67

<170> PatentIn Ver. 2.1

<210> 1

<211> 20

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
 sequence

<400> 1

Met	Glu	Phe	Met	His	Ile	Ser	Pro	Pro	Glu	Pro	Glu	Ser	Glu	Glu	Glu
1				5					10					15	

Glu	Glu	His	Ser
			20

<210> 2

<211> 10

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
 sequence

<400> 2

Met	Glu	Phe	Met	His	Glu	Ser	His	Ser	Ser
1				5					10

<210> 3

<211> 16

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 3

Met Glu Phe Met His Ile Ser Pro Pro Glu Pro Glu Ser His Ser Ser  
1 5 10 15

<210> 4

<211> 15

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 4

Met Glu Phe Met His Glu Ser Glu Glu Glu Glu Glu His Ser Ser  
1 5 10 15

<210> 5

<211> 10

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 5

Met Glu Ala Ser Glu Glu Glu Glu Glu Phe  
1 5 10

<210> 6

<211> 28

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 6

His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Asp Gly Thr Leu Pro  
1 5 10 15

Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His  
20 25

<210> 7

<211> 28

<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: PEST example  
sequence

<400> 7  
His Gly Phe Pro Pro Ala Val Ala Ala Gln Asp Asp Gly Thr Leu Pro  
1 5 10 15  
Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His  
20 25

<210> 8  
<211> 28  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: PEST example  
sequence

<400> 8  
His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Asp Gly Ala Leu Pro  
1 5 10 15  
Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His  
20 25

<210> 9  
<211> 28  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: PEST example  
sequence

<400> 9  
His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Asp Gly Thr Leu Pro  
1 5 10 15  
Met Ser Cys Ala Gln Glu Ser Gly Met Asp His His  
20 25

<210> 10  
<211> 28  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: PEST example  
sequence

<400> 10

His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Val Gly Thr Leu Pro  
1 5 10 15

Met Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His  
20 25

<210> 11

<211> 28

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 11

His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Val Gly Thr Leu Pro  
1 5 10 15

Ile Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His  
20 25

<210> 12

<211> 28

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 12

His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Ala Ser Thr Leu Pro  
1 5 10 15

Val Ser Cys Ala Trp Glu Ser Gly Met Lys Arg His  
20 25

<210> 13

<211> 26

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 13

Phe Pro Pro Gly Val Glu Glu Pro Asp Val Gly Pro Leu Pro Val Ser  
1 5 10 15

Cys Ala Trp Glu Ser Gly Met Lys Arg His

<210> 14

<211> 27

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: PEST example  
sequence

<400> 14

Phe Leu Ala Glu Val Glu Glu Gln Asp Val Ala Ser Leu Pro Leu Ser  
1 5 10 15

Cys Ala Cys Glu Ser Gly Ile Glu Tyr Pro Ala  
20 25

<210> 15

<211> 25

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: consensus  
sequence

<220>

<221> MOD\_RES

<222> (2)..(3)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (10)..(12)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (15)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (19)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (23)..(24)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (25)

<223> optional amino acid

<400> 15

Phe Xaa Xaa Glu Val Glu Glu Gln Asp Xaa Xaa Xaa Leu Pro Xaa Ser  
1 5 10 15

Cys Ala Xaa Glu Ser Gly Xaa Xaa Xaa  
20 25

<210> 16

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus  
sequence

<220>

<221> MOD\_RES

<222> (2)..(3)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (10)..(12)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (15)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (19)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (23)..(24)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (25)

<223> optional amino acid

<220>

<221> MOD\_RES

<222> (26)

<223> any amino acid

<400> 16

Phe Xaa Xaa Ala Val Ala Ala Gln Asp Xaa Xaa Xaa Leu Pro Xaa Ser  
1 5 10 15

Cys Ala Xaa Glu Ser Gly Xaa Xaa Xaa Xaa  
20 25

<210> 17  
<211> 28  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: consensus  
sequence

<220>  
<221> MOD\_RES  
<222> (3)..(4)  
<223> any amino acid

<220>  
<221> MOD\_RES  
<222> (8)  
<223> any amino acid

<220>  
<221> MOD\_RES  
<222> (9)..(10)  
<223> optional amino acid

<220>  
<221> MOD\_RES  
<222> (12)..(14)  
<223> any amino acid

<220>  
<221> MOD\_RES  
<222> (16)..(17)  
<223> any amino acid

<220>  
<221> MOD\_RES  
<222> (26)..(28)  
<223> any amino acid

<400> 17  
His Gly Xaa Xaa Pro Glu Val Xaa Xaa Xaa Asp Xaa Xaa Xaa Leu Xaa  
1 5 10 15

Xaa Ser Cys Ala Gln Glu Ser Gly Met Xaa Xaa Xaa  
20 25

<210> 18  
<211> 9  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: D box example  
sequence

<400> 18  
Arg His Ala Leu Asp Asp Val Ser Asn  
1 5

<210> 19  
<211> 9  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: D box example  
sequence

<400> 19  
Arg Leu Ala Leu Asn Asn Val Thr Asn  
1 5

<210> 20  
<211> 9  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: D box example  
sequence

<400> 20  
Arg Ala Ala Leu Gly Asp Val Ser Asn  
1 5

<210> 21  
<211> 9  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: D box example  
sequence

<400> 21  
Arg Gln Val Leu Gly Asp Ile Gly Asn  
1 5

<210> 22  
<211> 9  
<212> PRT  
<213> Unknown Organism

<220>



<223> Description of Unknown Organism: D box example  
sequence

<400> 22

Arg Ala Ala Leu Gly Asp Leu Gln Asn  
1 5

<210> 23

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 23

Arg Ala Ala Leu Gly Asn Ile Ser Asn  
1 5

<210> 24

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 24

Arg Asn Thr Leu Gly Asp Ile Gly Asn  
1 5

<210> 25

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 25

Arg Thr Ala Leu Gly Asp Ile Gly Asn  
1 5

<210> 26

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example

sequence

<400> 26

Arg Ala Ala Leu Gly Glu Ile Gly Asn  
1 5

<210> 27

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 27

Arg Ala Val Leu Glu Glu Ile Gly Asn  
1 5

<210> 28

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 28

Arg Ser Ala Phe Gly Asp Ile Thr Asn  
1 5

<210> 29

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 29

Arg Ser Ile Leu Gly Val Ile Gln Ser  
1 5

<210> 30

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 30

Arg Ala Ala Leu Gly Val Ile Thr Asn

1

5

<210> 31

<211> 10

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 31

Arg Thr Val Leu Gly Val Ile Gly Asp Asn

1

5

10

<210> 32

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 32

Arg Thr Val Gly Val Leu Gln Glu Asn

1

5

<210> 33

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 33

Arg Ala Ala Leu Gly Thr Val Gly Glu

1

5

<210> 34

<211> 10

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 34

Arg Thr Val Leu Gly Val Leu Thr Glu Asn  
1 5 10

<210> 35

<211> 11

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 35

Arg Ala Ala Leu Ala Val Leu Lys Ser Gly Asn  
1 5 10

<210> 36

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 36

Arg Leu Pro Leu Ala Ala Lys Asp Asn  
1 5

<210> 37

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 37

Arg Gln Leu Phe Pro Ile Pro Leu Asn  
1 5

<210> 38

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box example  
sequence

<400> 38

Arg Arg Thr Leu Lys Val Ile Gln Pro  
1 5

<210> 39

<211> 9

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: D box general structure

<220>

<221> MOD\_RES

<222> (2)

<223> Ala or Thr

<220>

<221> MOD\_RES

<222> (3)

<223> amino acid present more than %50 of the time

<220>

<221> MOD\_RES

<222> (6)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (7)

<223> Ile or Val

<220>

<221> MOD\_RES

<222> (8)

<223> Gly or Thr

<220>

<221> MOD\_RES

<222> (9)

<223> amino acid present more than %50 of the time

<400> 39

Arg Xaa Ala Leu Gly Xaa Xaa Xaa Asn  
1 5

<210> 40

<211> 21

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination recognition element

<400> 40

Lys Glu Phe Ala Val Pro Asn Glu Thr Ser Asp Ser Gly Phe Ile Ser  
1 5 10 15

Gly Pro Gln Ser Ser  
20

<210> 41

<211> 22

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 41

Lys Gly Pro Asp Glu Ala Glu Glu Ser Gln Tyr Asp Ser Gly Leu Glu  
1 5 10 15

Ser Leu Arg Ser Leu Arg  
20

<210> 42

<211> 20

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 42

Lys Ala Ala Asp Ala Asp Glu Trp Cys Asp Ser Gly Leu Gly Ser Leu  
1 5 10 15

Gly Pro Asp Ala  
20

<210> 43

<211> 21

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 43

Lys Lys Glu Arg Leu Leu Asp Asp Arg His Asp Ser Gly Leu Asp Ser  
1 5 10 15

Met Lys Asp Glu Glu  
20

<210> 44  
<211> 14  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: consensus  
sequence

<220>  
<221> MOD\_RES  
<222> (2)...(11)  
<223> any amino acid

<220>  
<223> positions 2-11 may encompass X(8-10)

<400> 44  
Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asp Ser Gly  
1 5 10

<210> 45  
<211> 12  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 45  
Ser Tyr Leu Asp Ser Gly Ile His Ser Gly Ala Thr  
1 5 10

<210> 46  
<211> 12  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 46  
Arg Ala Glu Asp Ser Gly Asn Glu Ser Glu Gly Glu  
1 5 10

<210> 47  
<211> 6  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: example peptide

<220>  
<221> MOD\_RES  
<222> (3)...(4)  
<223> any amino acid

<400> 47  
Cys Cys Xaa Xaa Cys Cys  
1 5

<210> 48  
<211> 17  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: example peptide

<400> 48  
Trp Glu Ala Ala Ala Arg Glu Ala Cys Cys Arg Glu Cys Cys Ala Arg  
1 5 10 15

Ala

<210> 49  
<211> 17  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: example peptide

<400> 49  
Ala Glu Ala Ala Ala Arg Glu Ala Cys Cys Arg Glu Cys Cys Ala Arg  
1 5 10 15

Ala

<210> 50  
<211> 22  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 50  
Lys Lys Glu Arg Leu Leu Asp Asp Arg His Asp Ser Gly Leu Asp Ser  
1 5 10 15



Met Lys Asp Glu Glu Cys  
20

<210> 51

<211> 12

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 51

Arg Ala Ala Leu Ala Val Leu Lys Ser Gly Asn Cys  
1 5 10

<210> 52

<211> 29

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 52

His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Val Gly Thr Leu Pro  
1 5 10 15

Ile Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His Cys  
20 25

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus  
sequence

<220>

<221> MOD\_RES

<222> (2)...(3)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (6)

<223> any amino acid

<220>

<221> MOD\_RES

<222> (8)  
<223> any amino acid

<400> 53  
Arg Xaa Xaa Leu Gly Xaa Ile Xaa Asn  
1 5

<210> 54  
<211> 10  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 54  
Arg His Ala Leu Asp Asp Val Ser Asn Lys  
1 5 10

<210> 55  
<211> 29  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: ubiquitination  
recognition element

<400> 55  
His Gly Phe Pro Pro Glu Val Glu Glu Gln Asp Val Gly Thr Leu Pro  
1 5 10 15

Ile Ser Cys Ala Gln Glu Ser Gly Met Asp Arg His Lys  
20 25

<210> 56  
<211> 4  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism: binding peptide

<400> 56  
Tyr Glu Glu Ile  
1

<210> 57  
<211> 18  
<212> PRT  
<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 57

Asp Arg Glu Gly Cys Arg Arg Gly Trp Val Gly Gln Cys Lys Ala Trp  
1 5 10 15

Phe Asn

<210> 58

<211> 22

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 58

Glu Thr Pro Thr Phe Thr Trp Glu Glu Ser Asn Ala Tyr Tyr Trp Gln  
1 5 10 15

Pro Tyr Ala Leu Pro Leu  
20

<210> 59

<211> 12

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 59

Thr Phe Val Tyr Trp Gln Pro Tyr Ala Leu Pro Leu  
1 5 10

<210> 60

<211> 15

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 60

Val Ser Leu Ala Arg Arg Pro Leu Pro Pro Leu Pro Gly Gly Lys  
1 5 10 15

<210> 61

<211> 17

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 61

Lys Gly Gly Gly Ala Ala Pro Pro Leu Pro Pro Arg Asn Arg Pro Arg  
1 5 10 15

Leu

<210> 62

<211> 15

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 62

Ala Glu Cys His Pro Gln Gly Pro Pro Cys Ile Glu Gly Arg Lys  
1 5 10 15

<210> 63

<211> 13

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 63

Gly Ala Cys Arg Arg Glu Thr Ala Trp Ala Cys Gly Ala  
1 5 10

<210> 64

<211> 12

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 64

Asp Ile Thr Trp Asp Gln Leu Trp Asp Leu Met Lys  
1 5 10

<210> 65

<211> 13

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: binding peptide

<400> 65

Arg Asn Met Ser Trp Leu Glu Leu Trp Glu His Met Lys  
1 5 10

<210> 66

<211> 4

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<220>

<221> MOD\_RES

<222> (3)

<223> beta-Ala

<220>

<223> caproic acid linker between positions 3-4

<400> 66

Arg Ala Ala Cys  
1

<210> 67

<211> 4

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: ubiquitination  
recognition element

<220>

<221> MOD\_RES

<222> (3)

<223> beta-Ala

<220>

<223> caproic acid linker between positions 3-4

<400> 67

Pro Ala Ala Cys  
1